16. (Amended) An apparatus for reproduction of compressed digital images at a plurality of

speeds, said apparatus comprising:

a storage device [(10)] having stored therein [a] compressed program

records[(P1, P2. Pn)] , each program record containing multiple versions, and tables [(120)]

of predetermined temporally similar addresses within each version of said each program

record for selection between [use at] different play speeds;

transducing means [(51)] for reproducing images from said compressed

program records[(P1, P2. Pn)]; and,

control means [(50)] responsive to [a] user program and play speed selection

for selecting one of said program records [(P1, P2. Pn)], and additionally responsive to user

determined play speed for reading said tables [(120)] and generating predetermined

addresses within said one program record for [selected program records (P1, P2. Pn) for

locating said] transducing [(S1)means such that images are reproduced from said program

records (P1, P2. Pn) at] one of said multiple versions in correspondence with said user

determined play speed.

Add the following claim.

--17. The apparatus of claim 16, wherein said images are reproduced from a time which

precedes the preceding version.--

REMARKS

An Abstract is provided on a separate sheet as required. Claims 11 and 15 are
canceled without prejudice. In accordance with the Examiners Objection to claim 15, the
subject matter of claim 15 is added as new claim 17 to provide the desired numerical
sequence. Withdrawal of the objection is respectfully requested. Claim 12 deemed
allowable is amended and placed in independent form. The non-consecutive claim
numbering resulted from claim amendment (cancellation) during PCT prosecution. The
claims filed in the USPTO were submitted on pages annotated IPER AMENDED SHEET.

Rejection of Claims 1- 11 and 13 - 16 under 35 U.S.C. §102(e)

Claims 1 - 11 and 13 - 16 stand rejected under 35 U.S.C. 102(e) as being anticipated by Lane et al.

In claim 1 applicants recite a method for reproducing from a storage medium one of a plurality of video programs at a plurality of reproducing speeds wherein selection of ones of said plurality of speeds are linked at predetermined jump points. The method comprises the steps of: selecting one of the plurality of video programs for reproduction, selecting a reproduction speed for the one of the plurality of video programs; selecting a digitally encoded signal from a set of signals corresponding to the one of plurality of video programs, responsive to the reproducing speed; reproducing the digitally encoded signal from the set of signals; jumping to different ones of the encoded signals for the reproduction in accordance with the predetermined jump points, in response to subsequent selections of different reproduction speeds; and, decoding the reproduced signals for display of the selected program at the selected reproduction speeds. The selecting step further comprises selecting the digitally encoded signal from the set of digitally encoded signals corresponding to different speeds of reproduction with differing resolution values.

Applicants' claim 1 method describes selecting from a plurality of different programs, one program for reproduction at various selectable reproduction speeds. Selection between program reproduction speeds is achieved at linked predetermined jump points. The programs corresponding to different speeds have differing resolution.

In the Examiner's Detailed Action at page 3, item 5, the Examiner asserts;

> "Regarding claim 1, Lane et al. disclose in Fig. 17, 18 & 19 digital
> video recorder capable of recording and/or reproducing recorded video
> images stored in the form of compressed digital data for use during fast
> forward, search and reverse modes of video recorder playback
> operation comprising the steps of:
> a) selecting one of a plurality of "video program" for reproduction (see
> col. 55, line 54 – col. 56. line 45);"

At the Examiners citation noted above, Lane et al. make no mention, nor suggestion that the circuit arrangement shown in FIGURE 19 or the track format depicted in FIGURE 17 is capable of storing more than a single video program.

Lane et al. fail to show or suggest applicants' claim 1 recited step of;
"selecting one of said plurality of video programs for reproduction...".

The Examiner continues;

> "b) selecting reproduction speed for the one of the plurality of
> "video programs" (see col. 56, line 21 – col. 57. line 13)..."

At this citation Lane et al. describes a "fast scan" configuration and the control thereof but fails to mention or suggest applicants' claim 1 recited step of,

> "...selecting a reproduction speed for said one of said plurality
> of video programs..."

The Examiner continues at c) asserting that Lane et al. discloses,

> "...selecting digitally encoded signal from a set of signals
> corresponding to one of the plurality of programs
> responsive to the reproduction speed..."

The Examiner's citation of Lane et al. describes in detail the operation of block diagram FIGURE 18 and the track foot print of FIGURE 17. However, nowhere does Lane et al. disclose applicants' recited claim 1 step of;

> "...selecting a digitally encoded signal from a set of signals
> corresponding to said one of said plurality of video programs,
> responsive to said reproducing speed...".

The Examiner asserts at e) that Lane et al. discloses,

> "...jumping to different ones of the encoded set of signals for
> reproduction in accordance with the predetermined jump
> points in response to subsequent selections of different
> reproduction speeds..."

At the Examiner's citation for item e), col. 57, lines 14 – 67, Lane et al. disclose use of a track map look up table for storing one or more <u>equations</u> to identify possible fast scan sync block track locations. Clearly, Lane et al. discloses <u>equations</u> for calculating track locations but fails to disclose or suggest applicants recited "<u>predetermined jump points</u>". Furthermore in view of the physical track disclosed by Lane et al., "jumping" is unlikely to be mechanically achievable without interruption of the replayed program stream.

Finally the Examiner offers no assertion that Lane et al. disclose or suggest that digitally encoded signals corresponding to different speeds of reproduction have, as applicants' recite, "differing resolution values".

Since Lane et al. fail to mention or suggest selecting one program from a plurality of video programs, and make no mention of predetermined jump points for jumping

between different ones of the encoded set of signals, applicants' claim 1 is not anticipated by, nor rendered obvious in view of the teachings of Lane et al. Withdrawal of the rejection under 35 U.S.C. 102(e) is respectfully requested.

With regard to applicants' claim 2, the Examiner asserts that Lane et al. "discloses the step of arranging the "jump" points in a "nested pattern" (see Fig. 12a, b, c, & Fig. 13 a –d)".

The Examiner's asserted "jump" with the citation of FIGURES 12 and 13 of Lane et al. is unclear. In these sets of figures Lane et al. depict a helical scan recording format with track placement of trick play data, shown hatched, to enable recovery at various longitudinal speeds. In the track format and mechanism disclosed by Lane et al. the mechanism cannot permit a "jump" to be executed. In simple terms, in FIGURES 12 and 13 the areas shown hatched can only be accessed or read substantially sequentially by the continuous rotation of head drum (440, Fig. 11) and the associated tape movement by capstan (416 Fig. 11). The hatched areas cannot be "jumped to". They are accessible only by continuous, sequential reproduction. Withdrawal of the rejection of claim 2 is respectfully requested.

Claims 3 and 4 depend from claim 1, and are for the same reasons not anticipated nor rendered obvious by the teachings of Lane et al. Withdrawal of the rejections of claims 3 and 4 are respectfully requested.

With regard to applicants' claim 5 the Examiner asserts that;
"Lane et al discloses the step of generating the other ones of the
set for reproduction with a bit rate less than a bit rate of the one
signal for reproduction at the normal play speed (see col. 36,
lines 50 – 64).
The Examiners assertion is incorrect. At the above citation Lane et al. disclose the amounts of data that can be read from a given track length during normal and trick play operation. Lane et al. state that the amount of data recovered decreases as the tape speed increases. Lane et al. also teach that "As the tape speed increases the percentage of the tape's area that the heads cover decreases proportionally". Lane et al. clearly teach data recovered from a single track location decreases as the tape speed increases. However, nowhere in the Examiner's citation does Lane et al. show or suggest applicants' recited;

"...selecting other ones of said set for reproduction with a bit rate
less than a bit rate of said one signal selected for reproduction at
said normal play speed. .."

Lane et al. teach variation of replay track area with tape speed but fail to mention or suggest applicants' reproduction of <u>others</u> from the <u>set</u> having a <u>lesser bit rate</u> than the one signal selected for normal play reproduction. Since as cited, Lane et al. makes no mention of bit rate, applicants' claim 5 is not anticipated nor rendered obvious by Lane et al. Withdrawal of the rejection of claim 5 is respectfully requested.

Claims 6 and 7 depend from claim 1 and for the same reasons are not anticipated nor rendered obvious by the teachings of Lane et al. The Examiner cites Lane et al. at column 57, lines 3 – 57 and asserts that Lane et al. assembles "jump points" as look up tables. As described previously, the teachings of Lane et al. are specific to a helically scanning VCR which is mechanically incapable of "jumping". Withdrawal of the rejections of claims 6 and 7 are respectfully requested.

In claim 8 applicants recite an apparatus for reproducing video programs. The apparatus comprises a means for storing a plurality of video program records. Each program record has a set of digitally encoded signal records representative of the program. Each of the encoded signal records of each set are linked to one another at predetermined jump points by a linking means for selecting reproduction from different ones of said set. Each set of digitally encoded signal records has records of differing sizes for reproduction at a plurality of speeds.

With regard to applicants' claim 8 the Examiner asserts that
"Lane discloses the claimed:
a) means for storing a plurality of program records wherein each program
record having a set of digitally encoded signal records (see col. 38 lines 7 –
26)..."
Column. 38 lines 7 – 26 teaches,
"...a "fast scan" track, in one embodiment, a set of data sufficient
to generate a complete frame is recorded in a plurality of trick play
segments which comprise each fast scan track. .."

The citation continues disclosing that controlled sectioning of the frame may be used if the fast scan track does not have sufficient data. The Examiner's citation of Lane et al. teaches only reconstruction of a <u>single</u> frame in a trick play mode. The citation fails to disclose applicants' recited "storing a plurality of video program records", and fails to mention that <u>each</u> program record has a <u>set</u> of records where each record is representative of each program. Hence, Lane et al. fail to mention, suggest or disclose applicants' means for storing a plurality of program records as recited in claim 8, wherein;

> "...storing a plurality of video program records, wherein each program record having a set of digitally encoded signal records representative of said each program..."

Since the citation of Lane et al. teaches reconstruction of a <u>single</u> frame in a trick play mode applicants claim 8 is not anticipated.

The Examiner additionally cites Lane et al. at col. 57, lines 35 – 48, and asserts that Lane et al. disclose,
> "...wherein each set of digitally encoded signal records having records of differing sizes for reproducing at a plurality of speeds..."

This assertion is incorrect.

Lane et al. disclose a track map and describes the entries therein. However, Lane et al fail to mention or suggest applicants' recited sizes of records within each set, wherein;

> "...each said set of digitally encoded signal records has records of differing sizes for reproduction at a plurality of speeds..."

Because Lane et al. fail to mention or suggest storing a plurality of program records, where each record has a set records which are of different sizes for replay at different speeds, applicants' claim 8 is not anticipated, nor rendered obvious by Lane et al. Withdrawal of the rejection under 35 U.S.C. 102(e) is respectfully requested.

       Claim 9 depends from claim 8 and is, for the same reasons, not anticipated by Lane et al. Claim 9, as amended herein, is additionally patentable over Lane et al. because applicants' recite the grouping of jump points specific to transitions between similar temporal program events for reproduction at differing speeds.

       The Examiner states that the limitations of claim 9 are accommodated by the discussion of claim 8. This assertion is incorrect because Lane et al. disclose a track map and describes entries therein, but make no mention nor suggestion that the disclosed track map provides applicants jump points as recited,

"...jump points are grouped specific to transitions between similar temporal program events for reproduction at differing speed..."

Because the track map of Lane et al. fails to describe grouping for transitions between similar temporal program events, applicants' claim 9 is not anticipated and is additionally patentable of Lane et al. Withdrawal of the rejection is respectfully requested.

Claim 10 depends from claim 8 and is, for the same reasons, not anticipated by Lane et al. Withdrawal of the rejection is respectfully requested.

Claim 11 is cancelled without prejudice.

Claim 12 was objected to but would be allowable if rewritten in independent form to include the limitations of the base and any intervening claims. Claim 12 is amended by this response and placed independent form as required. The allowance of amended claim 12 is respectfully requested.

Claim 13 depends from claim 8 and is, for the same reasons, not anticipated by Lane et al. Claim 13 is not anticipated by the Examiners' citation (col. 36, lines 50 - 64) because Lane et al. describes the consequences of replay from a given track length at various speeds. In simple terms as the longitudinal tape speed increases the amount of data read by the transducer decreases. Lane et al. describe a given length tape for the recorded signal or byte record which is invariable, and is not changed by the speed of reproduction. Thus claim 13 is not anticipated and is additionally patentable over Lane et al. Withdrawal of the rejection is respectfully requested.

Claim 14 depends from claim 8 and is, for the same reasons, not anticipated by Lane et al. Claim 14 is not anticipated by the Examiners' citation (col. 36, lines 50 - 64) for the same reasons as claim 13 above. Lane et al. teaches the effect of replay speed and the consequential change in head to track angle with respect to a given recorded track length. Lane et al. recovers less data as the speed increases, the physical record however, has the same fixed byte length regardless of the speed of reproduction. Thus claim 14 is not anticipated and is additionally patentable of Lane et al. Withdrawal of the rejection is respectfully requested.

In claim 16 applicants recite an apparatus for reproduction of compressed digital images at a plurality of speeds. The apparatus comprises a storage device having stored therein compressed program records. Each program record contains multiple

versions for use at different play speeds, and tables of predetermined temporally similar addresses within each version of the program record for selection between different play speeds.   A transducing means for reproducing images from the compressed program records.   A control means is responsive to user program and play speed selection for selecting one of the program records.   The control means is additionally responsive to user determined play speed for reading the tables and generating predetermined addresses within the selected program record for transducing one of the multiple versions in correspondence with the user determined play speed.

Applicants' apparatus allows user selection between compressed program records, where each program record contains multiple versions of the program with each version being for a specific reproduction speed.   A table contains temporally related addresses within each program version to permit user selection between the multiple, speed specific versions of the program.

With regard to claim 16 the Examiner states that "Lane et al. disclose the claimed:
    a) storage device (see claim 9 discussions)"

The claim 9 discussions refer to assertions offered for claim. 8, where the Examiner asserts that Lane et al., at column 38, lines 7 – 26, discloses a means for storing a plurality of program records.   However, as applicants explained previously, the Examiners' citation is specific to a "fast track" embodiment where Lane et al teach that only data sufficient to generate <u>a complete frame</u> is recorded.   Clearly a complete frame, occupying one thirtieth of one second, cannot reasonably be considered a program.
    In claim 16 applicants recite,
        "...storage device having stored therein compressed program records,
        each program record containing multiple versions for use at different
        play speeds..."
The Examiners citation teaches storage of <u>one frame</u>, clearly not applicants recited program records, with each program record containing multiple versions.

The Examiner cites column 57, lines 35 – 48, which discloses tables with locations of all possible trick play track locations. However, applicants recite,

"...tables of predetermined temporally similar addresses within each version of said each program record for selection between different play speeds; ..."

The cited tables of Lane et al. list all possible trick play track locations. However, because Lane et al. fail to record applicants multiple versions within each program record, Lane et al. has no temporally similar events in multiple program versions for selection between, hence Lane et al. have no need nor capability of forming tables as applicants recite.

Since Lane et al. fails to store program records each containing multiple versions for use at different play speeds and fails to store tables of temporally similar addresses, applicants' claim 16 is not anticipated nor rendered obvious by Lane et al. Withdrawal of the rejection under 35 U.S.C. 102(e) is respectfully requested.

New claim 17 depends from claim 16 and presents material previously represented in claim 15 which was "objected to" and is now cancelled. Because new claim 17 depends from claim 16, it is, for the same reasons patentable over Lane et al.

All claims are amended to more clearly recite applicants' invention. The claims as amended herewith are patentable over the reference, and the prior art of record. Applicant respectfully requests the withdrawal of the rejections under 35 U.S.C. 102(e) and the allowance of claims 1 –10, 13, 14, 16 and new claim 17.

No other fee is believed due. However, if an additional fee is due, please charge the fee to Deposit Account 07-0832.

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Respectfully submitted
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</div>

May 24, 2000

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